Abstracts

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Outcomes and survival in surgical treatment of the descending thoracic aorta with acute dissection

Bozinovski J, Coselli JS. Ann Thorac Surg 2008;85:965-71.

Conclusion: Open replacement of the descending thoracic aorta or thoracoabdominal aorta for acute type B dissection carries substantial morbidity and mortality rates.

Summary: In a large majority of cases, acute type B aortic dissection is managed medically with a favorable outcome. Certainly, aortic rupture in the setting of acute type B dissection is an indication for emergency intervention. Some centers also used continued pain or a large diameter aortic dissection as an indication for urgent repair. In this article the authors describe the results of open urgent or emergency repair of the descending thoracic aorta or the thoracoabdominal aorta for acute dissection in 76 consecutive patients (72% male). The patients were acquired during a 16-year period from 1989 to 2004 and therefore represent a relatively small component of patients treated for thoracic dissection at this center during that time. The average age of the patients who underwent surgery for acute type B aortic dissection was 64.1 ± 12.2 years (range, 36-86 years), and 22% presented with rupture. A variety of surgical adjuncts were used without a specific protocol, including hypothermic circulatory arrest in eight patients and left carotid bypass in 15. Spinal fluid drainage was used in only five patients. Aortic clamp time was 38.4 ± 17.3 minutes.

One patient died intraoperatively. The overall 30-day operative mortality was 22.4%. Paraplegia occurred in 6.6%, and hemodialysis was required in 19.7%, with about half of these patients requiring permanent hemodialysis. Cardiac complications occurred in 43.4%, and 10 patients had prolonged respirator dependence necessitating tracheostomy. The hospital stay was 26.0 ± 29.7 days. Rupture was not associated with an increased risk of operative mortality or perioperative complication.

Comment: The article highlights why it is best to avoid an operation in acute type B dissections. Even in a center with acknowledged expertise in thoracic aortic surgery, mortality is high and morbidity is also very high. Because mortality and morbidity rates were the same for patients with and without rupture, it is important to reassess indications for emergency or urgent open thoracic aortic repair in patients with acute type B dissection. We need better natural history data to know whether continued pain predicts rupture or if a larger initial diameter of the dissection predicts actual rupture. One can also see this article as providing justification for endovascular repair of ruptured or severely symptomatic acute type B dissections. Given the results here, most centers are likely to do better with endovascular repair rather than open repair of an acute type B dissection.

Telmisartan, ramipril, or both in patients at high risk for vascular events

ONTARGET Investigators. N Engl J Med 2008;358:1547-59.

Conclusion: The angiotensin-receptor blocker (ARB) telmisartan is equivalent to the angiotensin-converting enzyme (ACE) inhibitor ramipril in preventing cardiovascular events in patients with vascular disease or diabetes.

Summary: It is well known that ACE inhibitors reduce mortality and morbidity from cardiovascular causes in patients with vascular disease or high-risk diabetes who do not have heart failure. ARBs have also been shown to reduce fatal and nonfatal cardiovascular events, but have not been previously compared with ACE inhibitors in patients with peripheral arterial disease or high-risk diabetes. In this study, the ACE inhibitor ramipril was compared with the ARB inhibitor telmisartan and with the combination of the two drugs in patients with vascular disease or high-risk diabetes. This was a noninferiority study. Patients underwent a three-way, single-arm, run-in period and then were randomized using double-blind techniques so that 8576 patients received 10 mg of ramipril daily, 8542 received 80 mg of telmisartan daily, and 8502 received both drugs as a combination therapy. The primary composite outcome was myocardial infarction, stroke, hospitalization for heart failure, or death from cardiovascular causes.

Median follow-up was 56 months. The mean blood pressure was lower in both the telmisartan group and the combination therapy group compared with the ramipril group. The difference was 0.9/0.6 mg Hg in the telmisartan group and 2.4/1.4 mm Hg in the combination therapy group compared with the ramipril group. The primary endpoint occurred in 1412 patients (16.5%) in the ramipril group and in 1423 (16.7%) in the telmisartan group (relative risk, 1.05; 95% confidence interval, 0.95-1.09). The telmisartan group had lower rates of cough than the ramipril group (1.1% vs 4.2%, $P < .001$). The telmisartan group also had a lower rate of angioedema than the ramipril group (0.1% vs 0.2%, $P = .01$) but a higher rate of hypotensive symptoms (2.6% vs 1.7%, $P < .001$). Syncopal rate was the same in the two groups (0.2%). In the combination therapy group, the primary endpoint occurred in 1386 patients (16.3%; relative risk, 0.99; 95% CI, 0.92-1.07) compared with the ramipril group. The combination therapy group had an increased risk of hypotensive symptoms (4.8 % vs 1.7%, $P < .001$), syncope (0.3% vs 0.2%, $P = .03$), and renal dysfunction (13.5% vs 10.2%, $P < .001$) than the ramipril group.

Comment: The data indicate that the ARB telmisartan is equivalent to the ACE inhibitor ramipril in patients with vascular disease or high-risk diabetes in reducing cardiovascular events. This is the fourth trial indicating the ARBs are equivalent to ACE inhibitors in reducing cardiovascular events. The clinical role of ARBs is still being defined. These drugs are more costly than ACE inhibitors and generally have more side effects. At this point their primary value seems to be patients who cannot tolerate ACE inhibitors because of cough.

Long-term results of carotid stenting vs endarterectomy in high-risk patients

Grum HS, Yadava JS, Fayad P, and the SAPPHIRE Investigators. N Engl J Med 2008;358:1572-9.

Conclusion: There is no significant difference in long-term outcomes in patients with severe carotid artery stenosis and increased surgical risk treated with carotid stenting and an embolic protection device vs those undergoing carotid endarterectomy (CEA).

Summary: The Stenting and Angioplasty with Protection in Patients at High Risk for Endarterectomy (SAPPHIRE) trial was designed as a noninferiority trial and reported 1-year results in 2004, finding carotid artery stenting with an embolic protection device was not inferior to CEA (N Engl J Med 2004;351:1493-501). The 3-year results are reported here. Originally, 334 patients were entered in the trial. The patients were considered at increased risk for complications for CEA and had to have had at least 50% stenosis of the internal carotid artery to be included. Eighty percent of the patients were asymptomatic. Prespecified major secondary endpoints at 3 years were a composite of death, stroke, or myocardial infarction ≤30 days after the procedure, or death or ipsilateral stroke between 31 days and 1080 days (3 years).

At 3 years, data were available for 260 patients, 85.6% of the patients in the stented group and 70.1% of patients in the CEA group. Prespecified major secondary endpoints occurred in 41 patients in the stented group (cumulative index, 24.6%; Kaplan-Meier estimate, 26.2%) and in 45 patients in the endarterectomy group (cumulative index, 26.9%; Kaplan-Meier estimate, 30.3%; absolute difference in cumulative incidence for the stenting group, –2.3%; 95% CI, 11.8-7.0). There were 15 strokes in each of the two groups, with 11 in the stenting group and nine in the CEA group being ipsilateral to the treated artery.

Comment: This trial has a number of significant limitations, all of which, to the authors' credit, are indicated on the last page of the article, before the references. These include the absence of a medical therapy group, the fact that many of these patients in many practices would not be treated with any intervention, the small size of the randomized cohort that prevents meaningful subgroup analysis, incomplete follow-up at 3 years, the use of only one type of embolic protection device, and the lack inclusion of moderate- or low-risk patients for CEA. Finally, 10 of the 12 named authors are financially linked to Cordis, the sponsor of the trial, or had patents linked to the cerebral protection device used in the trial.

Significance of postoperative cross cerebellar hypoperfusion in patients with cerebral hyperperfusion following carotid endarterectomy: SPECT study

Ogasawara K, Kobayashi M, Suga Y, et al. Eur J Nucl Med Mol Imaging 2008;35:146-52.

Conclusion: Postoperative crossed cerebellar hypoperfusion (CCH) in patients with cerebral hyperperfusion after carotid endarterectomy (CEA) results in postoperative cognitive impairment even when asymptomatic.

Summary: Cerebral hyperperfusion after CEA is defined as an increase in ipsilateral cerebral blood flow that exceeds the metabolic demands of brain tissue. The occurrence of the cerebral hyperperfusion syndrome is characterized by headache, face and eye pain, seizure, and focal symptoms. Symptomatic cerebral edema or intracerebral hemorrhage occurs less often than cerebral hyperperfusion after CEA, much of which may be asymptomatic. There are data to suggest post-CEA cerebral hyperperfusion, as measured by a single-photon emission computed tomography (SPECT) scanning, can be associated with development of postoperative cognitive impairment without